

Aero Design Ltd.**Work Order Control Sheet**Work Order#: 2015-39 Date Opened: 01-May-15 Title: FabricationAircraft OEM: Bell Aircraft Model: 206L/407 Product Type: Beams Product Model: N/A Quantity: 3**Work Order Contents**

Work Order/Build Sheets (Procedures Provided)
Additional Work Sheets (Standard Practice)
Drawings (See List Below)
Parts Distribution Sheet
Sub Component Tags
Completed Certification
Time Sheet (R&D)
Notes

Initial or N/A

| |
|-----|
| JR |
| N/A |
| JR |
| JR |
| N/A |
| JR |
| N/A |
| N/A |

Build Sheet Contents

Tasks Initialled
Dual Inspections Initialled

Initial or N/A

| |
|----|
| JR |
| JR |

Drawing List

| Drawing # | Rev # | Description | Initial or N/A |
|-----------|-------|-------------|----------------|
| 69830 | 3 | Fwd Beam | JR |
| 69831 | 3 | Aft Beam | JR |

Component Completion

Quantity Complete on This Work Order
Quantity Incomplete on This Work Order
Further Processing Required Before Release
Release to Stock as Components

As Instructed

| |
|--------|
| 3 Sets |
| N/A |
| N/A |
| N/A |

Certification

Form One Completed
Serviceable (Green) Tag Completed
In Process (Yellow) Tag Completed
Unserviceable (Red) Tag Completed
Parts Placed in Stores for Distribution

Initial or N/A

| |
|-----|
| JR |
| N/A |
| N/A |
| N/A |
| N/A |

Additional Documentation

Documentation of a minor change
Non-Conformance Report Required
Service Difficulty Report Required

Initial or N/A

| |
|-----|
| N/A |
| N/A |
| N/A |

Billing

Local (Aero Design)
Research and Development
Third Party

Initial or N/A

| |
|-----|
| JR |
| N/A |
| N/A |

Traveller

Initial or N/A

| |
|--|
| |
| |
| |
| |
| |
| |
| |

Work performed by:

Print: J Rekve for M Rekve

Sign:

ICC / Dual Inspection performed by:

Print: Jason Rekve

Sign:

Work Order closed by:

Print: Jason Rekve

Sign:

SCA: AD01

Date: 13-May-15

SCA: AD01

Date: 13-May-15

SCA: AD01

Date: 13-May-15

Approved Manufacturing Facility 73-04

Form 20.D.03

Rev. Original 23 Sep 2014

| | | | | | | |
|---|----------------|---|---|----------------------|---|-----------------------------------|
| 1. Approving Civil Aviation Authority/Country Transport Canada | | 2. AUTHORIZED RELEASE CERTIFICATE FORM ONE | | | 3. Form Tracking No. | |
| 4. Organization Name and Address AERO Design Ltd. – 9888A Malaspina Road, Powell River, BC, V8A 0G3 | | | | | 5. Work Order/Contract/Invoice WO 2015-39 | |
| 6. Item | 7. Description | 8. Part Number | 9. Qty. | 10. Serial/Batch No. | 11. Status/Work | |
| 1 | Forward Beam | 69830-02 | 1 | | | |
| 2 | Aft Beam | 69831-02 | 1 | N/A | New | |
| 12. Remarks | | | | | | |
| 13a. Certifies that the items identified above were manufactured in conformity to: | | | 14a. <input type="checkbox"/> CAR 571.10 Maintenance Release <input type="checkbox"/> Other regulation specified in block 12 Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12, has been performed in compliance with the Canadian Aviation Regulations. | | | |
| <input checked="" type="checkbox"/> Approved design data and are in condition for safe operation. <input type="checkbox"/> Non approved design data specified in block 12. | | | | | | |
| 13b. Signature <i>Jeff Clarke</i> | | 13c. Approved Organization Number AMF 73-04 | | 14b. Signature | | 14c. Approved Organization Number |
| 13d. Name Jeff Clarke – AD02 | | 13e. Date (dd/mmm/yyyy) 15 May 2015 | | 14d. Name | | 14e. Date (dd/mmm/yyyy) |
| <p align="center">Installer Responsibilities</p> <p>This certificate does not constitute authority to install.</p> <p>Installers working in accordance with the national regulations of a country other than that specified in block 1 must ensure that their regulations recognize certifications from the country specified.</p> <p>Statements in blocks 13a or 14a do not constitute installation certification. In all cases, the technical record for the aircraft must contain an installation certification issued in accordance with the applicable national regulations before the aircraft may be flown.</p> | | | | | | |

HTSC

| | | | | | | |
|--|----------------|---|---------|--|---|-----------------------------------|
| 1. Approving Civil Aviation Authority/Country Transport Canada | | 2. AUTHORIZED RELEASE CERTIFICATE FORM ONE | | | 3. Form Tracking No. | |
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| 13a. Certifies that the items identified above were manufactured in conformity to: | | | | 14a. <input type="checkbox"/> CAR 571.10 Maintenance Release <input type="checkbox"/> Other regulation specified in block 12 | | |
| <input checked="" type="checkbox"/> Approved design data and are in condition for safe operation. <input type="checkbox"/> Non approved design data specified in block 12. | | | | Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12, has been performed in compliance with the Canadian Aviation Regulations. | | |
| 13b. Signature <i>Jeff Clarke AD02</i> | | 13c. Approved Organization Number AMF 73-04 | | 14b. Signature | | 14c. Approved Organization Number |
| 13d. Name Jeff Clarke – AD02 | | 13e. Date (dd/mmm/yyyy) 15 May 2015 | | 14d. Name | | 14e. Date (dd/mmm/yyyy) |
| <p style="text-align: center;">Installer Responsibilities</p> <p>This certificate does not constitute authority to install.</p> <p>Installers working in accordance with the national regulations of a country other than that specified in block 1 must ensure that their regulations recognize certifications from the country specified.</p> <p>Statements in blocks 13a or 14a do not constitute installation certification. In all cases, the technical record for the aircraft must contain an installation certification issued in accordance with the applicable national regulations before the aircraft may be flown.</p> | | | | | | |

HTSC

MOUNTING BEAM FABRICATION – 69830/69831

General

These instructions apply to mounting beams 69830-02 (forward) and 69831-02 (aft) for Bell 206L/407 low mounted cargo baskets. Refer to the following drawings, at the current revision, for dimensions and details:

69830, Revision 3 – Forward Beam

69831, Revision 3 – Aft Beam

Note: Drawings 69830 and 69831 have configurations using HSS/mild steel and stainless steel. Only stainless steel beams are produced, HSS/mild steel was only used in early production.

Work Order: 2015-39

Batch Quantity: 3 FWD
3 AFT

Complete
(initial or SCA #)

Date Open: 01 MAY 2015

1. Beam Fabrication – 1x2 tubes – 69830-02 / 69831-02

- Cut 1 x 2 x 0.12 material as indicated on drawings.
 - 69830-02: 69830-13 (long tube), 69830-14 (down tube)
 - 69831-02: 69831-13 (long tube), 69831-14 (corner tube), 69831-15 (down tube)
- Record material PO on attached material list.
- De-burr cut ends using a sanding disc on a die-grinder.
- Remove writing on tubes with acetone.
- Tag in-progress parts and place on in-progress shelf in machine shop for CNC machining of keyways, slots, and bushing holes.

2. CNC Machining – 69830-02 / 69831-02

- Run CNC programs to machine keyways, slots and holes in component parts.
- De-burr keyways, slots and holes.
- Tag in-progress parts and place on in-progress shelf in welding shop for welding.

3. Beam Fabrication – Components – 69830-02 / 69831-02

Note: Some components are used for many different beams and are made in batches on separate component work orders. Check stock before making components.

- Shear and bend caps: 69830-19, 69830-20, 69831-20.
- Cut and turn 69830-15 bushings and 69830-11 guide tubes:
 - Cut stock to length + 0.03-0.06".
 - Face one end flat @ 1000 RPM.
 - De-burr outside with a file and inside with de-burring tool at 300 RPM.
 - Setup stop and face other end to length @ 1000 RPM.
 - De-burr outside with a file and inside with a de-burring tool at 300 RPM.
- Cut 69830-07 blocks.
- Record component POs / WOs on attached material list.

AP-05

4. Beam Welding – 69830-02 / 69831-02

- a. TIG weld 69830-11 guide tubes into 69830-14 and 69831-15 down tubes using ER308L rod, two places per down tube. Use jig to align guide tube to keyway and hole. Grind rosette welds flush.
- b. TIG weld 69830-15 bushings into 69830-13 and 69831-13 long tubes using ER308L rod, two places per tube, both sides. Ensure bushings protrude from correct side of beam. Refer to drawings.
- c. Forward beam (45 degree corners): TIG weld 69830-13 long tubes (from b) to 69830-14 down tubes (from a) using ER308L rod. Use corner vises to hold tubes square. Ensure top slot has sufficient clearance for basket fitting (96710-01 or Ancra 40088-14).
- d. Aft beam (22.5 degree corners): TIG weld 69831-13 long tubes (from b) to 69831-14 corner tubes and 69831-15 down tubes (from a) using ER308L rod. Use corner vises to hold tubes square. Ensure top slot has sufficient clearance for basket fitting (96710-01 or Ancra 40088-14).
- e. TIG weld components using ER308L rod:
 - i. 69830-16 strap to beam, centre on bushing.
 - ii. 69830-07 stops over bottom outboard keyway and top inboard keyway.
 - iii. 69830-19, 69830-20, 69831-20 caps.
- f. Record component and welding rod POs / WOs on attached material list.
- g. Tag in-progress parts for finishing.

5. Beam Finishing – 69830-02 / 69831-02

AP-06

Note: straightening the beams is critical for ease of installation of the cargo basket.

- a. Straighten beams at strap using hydraulic press.
 - i. Set beam upside down on blocks as far apart as possible, locate ram over strap/bushing.
 - ii. Use a block to distribute press loads, about 2" wide
 - iii. Gradually work up to pressure required to make beam straight, usually more than 1000 psi is required. The same pressure generally works for beams from the same batch.
 - iv. Check for straight with a straight edge on bottom of tube. Ensure straight edge does not sit up on end cap.
- b. Straighten beams into plane using hydraulic press.
 - i. Check beams for plane by setting beam on a flat surface (welding table) on blocks. Use two blocks under long tube as far apart as possible. Attempt to slide block under end of down tube. Record direction and approximate distance to make block fit.
 - ii. Set beam on block under press ram, as close to corner at down tube as possible. Set the beam so that pushing down on the down tube will straighten the beam.
 - iii. Pressurize ram to 800 psi to hold beam.
 - iv. Clamp a snipe tube to down tube.
 - v. Push down on snipe tube. Note pressure on press for applied deflection. Similar deflections will require similar pressure.
 - vi. Check beams for plane, repeat steps ii-v if required.
- c. Break sharp edges off strap and stops using sanding disc on die-grinder.
- d. Tag in-progress parts for inspection.

MOUNTING BEAM FABRICATION – 69830/69831

Complete
(initial or SCA #)

AK

6. Final Inspection – 69830-02 / 69831-02

To be completed by a different person than the previous steps.

- a. Inspect beams 69830-02 and 69831-02 for conformity to drawing.
- b. Tag in-progress parts ready for powder coating.

AK

7. Powder Coating

- a. Parts are to be powder coated white in accordance with commercial practices.
- b. Record powder coating PO.
- c. Inspect powder coating on receiving.
- d. Tag in-progress parts ready for final assembly.

AK

8. Final Assembly

To be completed after powder coating.

- a. Clear powder coat from stop pin hole(s) with 5/16 (#4) centre drill.
- b. Install #10-32 x 3" countersunk screw, 69830-21 stop, and 69830-23 spring into bottom guide with 69830-22 knob and MS21044C3 nut. Check for function.
- c. Optional - If cabin step is to be installed: Install #10-32 x 2.5" countersunk screw, 69830-21 stop, and 69830-23 spring into top guide with 69830-08 knob and MS21044C3 nut. Check for function.
- d. Adhere P/N placard to top surface of beam, between strap and end on top surface.
- e. Green tag completed beam assemblies and place into stock.



Aero Design Ltd.

9888 A Malaspina Rd. Powell River, BC, V8A 0G3

Phone: 604-483-2376 Fax: 604-483-2372 E-mail: info@aerodesign.ca

AMF 73-04

Nomenclature: Doubler/Strap No. of pieces: 100
Manufacturer: Metal Alloy Fabrication
Part No.: 69830-06 Serial / Batch No.: NSN
TTSN: N/A TSO: N/A Rem.: N/A
Work Order No.: PO#13082 MAF
Remaining Tasks to be Performed: Ready for install
on mounting beams
Signature: Oase Reh
Date: Dec 17/13 Lic. No. / ACA AD 01

In Process



Aero Design Ltd.

9888 A Malaspina Rd. Powell River, BC, V8A 0G3

Phone: 604-483-2376 Fax: 604-483-2372 E-mail: info@aerodesign.ca

AMF 73-04

Remarks

In Process

[illegible]

Work Order: 2015-39Material Tracking Sheet
Bell 206L/407 Forward Mounting Beams

1 of 2

Date Opened: 01 MAY 2015

| Ass'y Step | Qty | Detail Drawing | Part Number | Description | Material | PO/WO |
|---------------|-------|----------------|-----------------|------------------------------|--|-------------|
| | | | 69830-02 | Forward Beam Assembly | | |
| Step 1 | | | | <i>Fabrication</i> | | |
| | . 1 | | 69830-13 | Tube | 304 Stainless, 1x2x0.125 tube | 14060 19077 |
| | . 1 | | 69830-14 | Tube | 304 Stainless, 1x2x0.125 tube | 14060 13088 |
| Step 2 | | | | <i>Machining</i> | None | |
| Step 3 | | | | <i>Fabrication</i> | | |
| | . 2 | | 69830-15 | Bushing | 316 Stainless, 5/8" x 0.120 tube | 2093 |
| | . 1 | | 69830-16 | Strap | 304 Stainless, 0.105" Sheet | 13082 |
| | . 1 | | 69830-17 | Block | 304 Stainless, 3/16" x 3/4" bar | 204-49 |
| | . 1 | | 69830-19 | Cap | 321 Stainless, 0.032" Sheet | 3021 046 |
| | . 1 | | 69830-20 | Cap | 321 Stainless, 0.032" Sheet | 3021 046 |
| | . 1 | | 69830-11 | Guide | 304 Stainless, 3/4" x 0.065" Rnd. Tube | 2015-14 |
| Step 4 | | | | <i>Welding</i> | | |
| | . A/R | | -- | Welding Rod | ER308L | 14028 |
| Step 5 | | | | <i>Straightening</i> | None | |
| Step 6 | | | | <i>Inspection</i> | None | |
| Step 7 | | | | <i>Powder Coating</i> | | |
| Step 8 | | | | <i>Final Assembly</i> | | |
| Step 8.a. | . 1 | | 69830-21 | Stop | 6061-T6 Aluminum, 5/8" Rod | |
| | . 1 | | 69830-22 | Knob | 6061-T6 Aluminum, 3/4" Rod | |
| | . 1 | | 69830-23 | Spring | 15mm x 70 mm Spring | |
| | . 1 | | 69830-1032X3 | #10-32 x 3 Screw | Stainless Steel, Commercial | |
| | . 1 | | MS21044C3 | Nut | | |

Work Order: 2015-39

Material Tracking Sheet
Bell 206L/407 Forward Mounting Beams

2 of 2

Date Opened: 01 MAY 2015

| Ass'y Step | Qty | Detail Drawing | Part Number | Description | Material | PO/WO |
|------------|-----|----------------|----------------|--------------------|-------------------------------|-------|
| Step 8.b. | . 1 | | 69830-21 | Stop | 6061-T6 Aluminum, 5/8" Rod | |
| (optional) | . 1 | | 69830-08 | Knob | 6061-T6 Aluminum, 1.25" Rod | |
| | . 1 | | 69830-23 | Spring | 15mm x 70 mm Spring | |
| | . 1 | | 69830-1032X2.5 | #10-32 x 2.5 Screw | Stainless Steel, Commercial | |
| | . 1 | | MS21044C3 | Nut | | |
| Step 8.d. | . 1 | | -- | P/N Placard | TZ Tape, 1/2", black on white | |

Work Order: 2015-39Material Tracking Sheet
Bell 206L / 407 Aft Mounting Beams

1 of 2

Date Open: 01 MAY 2015

| Ass'y Step | Qty | Detail Drawing | Part Number | Description | Material | PO/WO |
|---------------|-----|----------------|-----------------|--------------------------|--|---------------------|
| | | | 69831-02 | Aft Beam Assembly | | |
| Step 1 | | | | <i>Fabrication</i> | | |
| | . 1 | | 69831-13 | Tube | 304 Stainless, 1x2x0.125 tube | 14060, 19077, 13099 |
| | . 1 | | 69831-14 | Tube | 304 Stainless, 1x2x0.125 tube | 14060, 19077, 13099 |
| | . 1 | | 69831-15 | Tube | 304 Stainless, 1x2x0.125 tube | 14060, 19077, 13099 |
| Step 2 | | | | <i>Machining</i> | None | |
| Step 3 | | | | <i>Fabrication</i> | | |
| | . 2 | | 69830-15 | Bushing | 316 Stainless, 5/8" x 0.120 tube | 12053 |
| | . 1 | | 69830-16 | Strap | 304 Stainless, 0.105" Sheet | 13082 |
| | . 1 | | 69830-17 | Block | 304 Stainless, 3/16" x 3/4" bar | 2014-49 |
| | . 1 | | 69830-19 | Cap | 321 Stainless, 0.032" Sheet | 3021, 048 |
| | . 1 | | 69830-20 | Cap | 321 Stainless, 0.032" Sheet | 3021, 048 |
| | . 1 | | 69830-11 | Guide | 304 Stainless, 3/4" x 0.065" Rnd. Tube | 2015-14 |
| Step 4 | | | | <i>Welding</i> | | |
| | A/R | | -- | Welding Rod | ER308L | 14028 |
| Step 5 | | | | <i>Straightening</i> | None | |
| Step 6 | | | | <i>Inspection</i> | None | |
| Step 7 | | | | <i>Powder Coating</i> | | |
| Step 8 | | | | <i>Final Assembly</i> | | |
| Step 8.b. | . 1 | | 69830-21 | Stop | 6061-T6 Aluminum, 5/8" Rod | |
| | . 1 | | 69830-22 | Knob | 6061-T6 Aluminum, 3/4" Rod | |
| | . 1 | | 69830-23 | Spring | 15mm x 70 mm Spring | |
| | . 1 | | 69830-1032X3 | #10-32 x 3 Screw | Stainless Steel, Commercial | |
| | . 1 | | MS21044C3 | Nut | | |

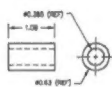
Work Order: 2015-39Material Tracking Sheet
Bell 206L / 407 Aft Mounting Beams

2 of 2

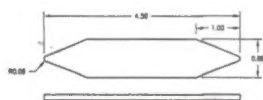
Date Open: 01 MAY 2015

| Ass'y Step | Qty | Detail Drawing | Part Number | Description | Material | PO/WO |
|------------|-----|----------------|----------------|--------------------|-------------------------------|-------|
| Step 8.c. | . 1 | | 69830-21 | Stop | 6061-T6 Aluminum, 5/8" Rod | |
| (optional) | . 1 | | 69830-08 | Knob | 6061-T6 Aluminum, 1.25" Rod | |
| | . 1 | | 69830-23 | Spring | 15mm x 70 mm Spring | |
| | . 1 | | 69830-1032X2.5 | #10-32 x 2.5 Screw | Stainless Steel, Commercial | |
| | . 1 | | MS21044C3 | Nut | | |
| Step 8.d. | . 1 | | -- | P/N Placard | TZ Tape, 1/2", black on white | |

① FORWARD BEAM ASSEMBLY
② FORWARD BEAM ASSEMBLY



⑤ BUSHING



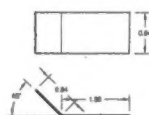
⑥ STRAP



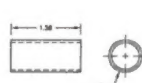
(07) BLOCK



© CAP



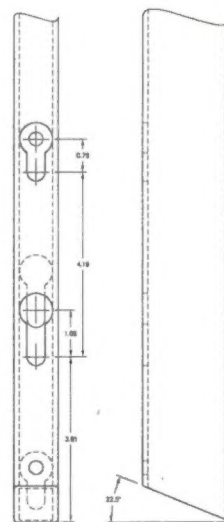
⑩ CAP



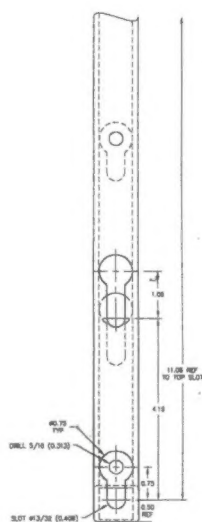
⑪ GUIDE



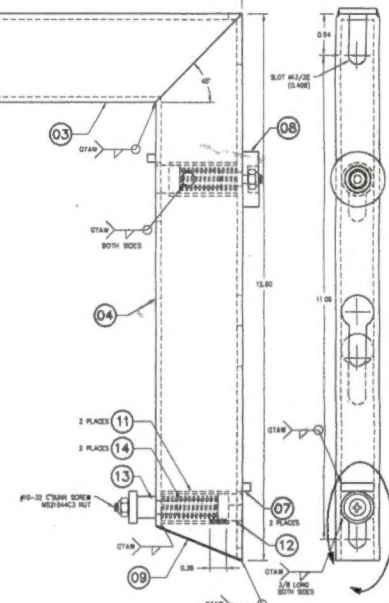
⑫ STOP



DETAIL A
LOOKING AT KEYWAY
PRIOR TO ASSEMBLY



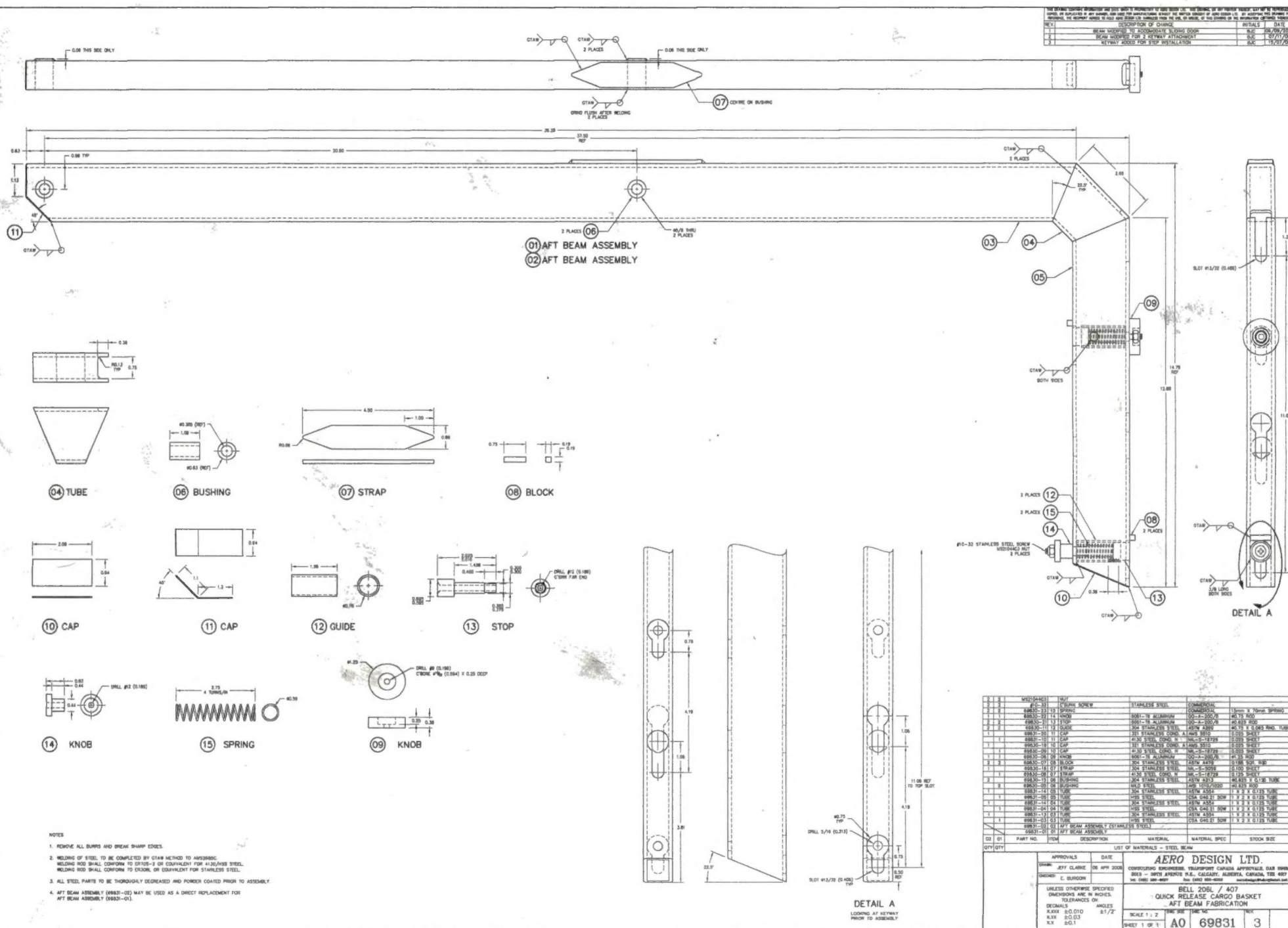
DETAIL A
LOOKING AT KEYWAY
PRIOR TO ASSEMBLY



DETAIL A

2. WELDING OF STEEL TO BE COMPLETED BY STAIN METHOD TO AWS2683C. WELDING ROD SHALL CONFORM TO E70T5-3 OR EQUIVALENT FOR A136/H36 STEEL. WELDING ROD SHALL CONFORM TO EX308L OR EQUIVALENT FOR STAINLESS STEEL.
3. ALL STEEL PARTS TO BE THOROUGHLY DEGREASED AND POWDER COATED PRIOR TO INSTALLATION.
4. FORWARD BEAM ASSEMBLY (90630-02) MAY BE USED AS A DIRECT REPLACEMENT FOR FORWARD BEAM ASSEMBLY (90630-01).

[illegible]





Description: _____

[illegible]